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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,183	06/06/2001	Kun-Yung Ken Chang	RB1-010US	5850
29150	7590	06/03/2005	EXAMINER	
LEE & HAYES, PLLC 421 W. RIVERSIDE AVE, STE 500 SPOKANE, WA 99201			NGUYEN, HAI L	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/876,183	CHANG ET AL.	
	Examiner	Art Unit	
	Hai L. Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “load pulse”, in claims 8 and 9, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show “a clock generator configured to generate a first clock signal and a second clock signal”, “an integrator” as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: the description of the element 252, in Fig.4, is not descriptive. It appears that the element 252 is a Flip-Flop, rather than an integrator as describe in the specification (page 10, lines 3-11); and “RCLK is used to latch TCLK”, rather than “RCLK is used to integrate TCLK”. A new description is required that is clearly indicative of the function to which the element is performed.

Claim Objections

4. Claims 2-8, 10-13, and 15-20 are objected to because of the following informalities: “An apparatus”, in claims 2-8, should be changed to --The apparatus--; “A method”, in claims 10-13, should be changed to --the method--; and “A memory system”, in claims 15-20, should be changed to --the memory system--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 9-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed limitations that “shifting the phase of the first clock signal by 90 degrees using a quadrature phase detector”, in

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claim 9, has not been enabled in the specification. The details of such functions are not seen in the description of the preferred embodiment. Since, it is notoriously well known in the art that quadrature phase detector circuits are used to detect and lock on when the two input signals are 90-degree out of phase with each other (see Graham et al., US 5,072,195). Therefore, it is not clear as currently defined, how the instant invention can perform the recited function.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-8 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 is indefinite because the limitation “the phase detector generating a skip signal by integrating the first clock signal, wherein the skip signal indicates whether the first clock signal is ahead of the second clock signal” is misdescriptive. Fig. 4 clearly shows that the phase detector (252) generating a skip signal (260) by clocking the first clock signal (256), rather than by integrating the first clock signal.

Claims 2-8 are rendered indefinite by the deficiencies of base claim 1.

10. Claim 15 is similarly indefinite because of the limitation “the phase detector generates a skip signal by integrating the first clock signal”, note the above discussion with regard to claim 1.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Filip (US 6,081,572).

With regard to claim 1, Filip discloses in Figs. 4B-5B an apparatus comprising a clock generator (304, 306) configured to generate a first clock signal (PD1) and a second clock signal (PD2), wherein the timing relationship between the first and second clock signals is arbitrary and wherein the first and second clock signals are individually adjustable; and a phase detector (308) coupled to receive the first and second clock signals, the phase detector generating a skip signal (S0) “by integrating” the first clock signal, wherein the skip signal indicates whether the first clock signal is ahead of the second clock signal.

With regard to claims 2, 4, 6, and 7, the references also meet the recited limitations in these claims.

With regard to claim 3, the skip signal has a first value (0) if the first clock signal is ahead of the second clock signal and the skip signal has a second value (1) if the second clock signal is ahead of the first clock signal.

With regard to claim 8, the limitation that "the skip signal indicates whether a load pulse should be sampled." is deemed to be intended use of the skip signal, it is noted that Filip reference has the ability to be used for indicating as well and therefore this limitation is met by the reference.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filip.

The above-discussed circuit of Filip meets all of the claimed limitations except for an inverter (262 in instant Fig. 4) coupled to an output of the phase detector. However, it is notoriously well known in the art that inverter are employed just for inverting a logic level of an input signal (see column 1, lines 30-49 US 6,727,735). Therefore, it would have been obvious to one of ordinary skill in the art to utilize an inverter for inverting an output level of the phase detector of the prior art to meet the specific required level of the particular application.

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15. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. (US 6,373,293) in view of Best (US 6,373,293).

With regard to claim 14, Kawasaki et al. discloses in Figs. 7-9 a memory system comprising a memory storage device (SDRAM, SRAM); a data bus (DATA); a clock generator (Xtal) configured to generate a first clock signal (CKIO) and a second clock signal (> (CPU)); and a memory controller (MCU). Figs. 7-9 of Kawasaki et al. shows a memory system meeting all of the claimed limitations except for a phase detector included in the memory controller as recited in the claim. Best teaches in Figs. 3-5 a quadrature phase detector for detecting the two input signals, which are 90-degree out of phase with each other such as the first and second clock signal above. Therefore, it would have been obvious to one of ordinary skill in the art to implement the quadrature phase detector taught by Best with the prior art (Figs. 7-9 of Kawasaki et al.) in order to detect phase differences from a quadrature phase relationship, without the need for extensive additional circuitry for driving and correcting the phase detection circuitry.

With regard to claim 15, the phase detector generates a skip signal (EARLY/LATE) by integrating the first clock signal over one half of a clock cycle.

With regard to claims 16-20, the references also meet the recited limitations in these claims.

Conclusion

16. Regarding claims 9-13, the patentability thereof cannot be determined because of failing to comply with the enablement requirement.

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17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. For example, Stark et al. (US 5,825,209) is cited as of interest because it discloses a quadrature phase detector circuit.

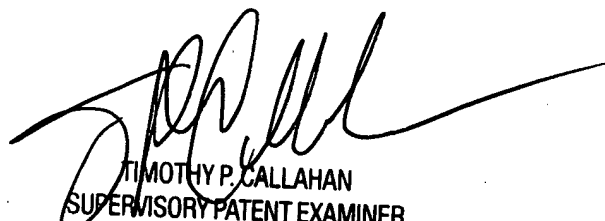
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen whose telephone number is 571-272-1747 and Right Fax number is 571-273-1747. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The official fax phone number for the organization where this application or proceeding is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HLN
April 18, 2005


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